

Refine Search

Your wildcard search against 10000 terms has yielded the results below.

Your result set for the last L# is incomplete.

The probable cause is use of unlimited truncation. Revise your search strategy to use limited truncation.

Search Results -

Terms	Documents
L35 and (single\$ with sens\$)	6

Database:

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US Patents Full-Text Database
US OCR Full-Text Database
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search:

10/707,569

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Search History

DATE: Sunday, October 28, 2007 [Purge Queries](#) [Printable Copy](#) [Create Case](#)

Set
Name Query
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side

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Name
result
set

DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES;
OP=OR

L35 and (single\$ with sens\$)

6

L35 AND safe\$

2

((single\$ near2 vis\$) with sens\$)

6

(single\$ adj vis\$ adj2 sens\$)

0

(driv\$ or passenger\$ or occupant\$) and(single\$ adj vis\$ adj2 sens\$)

0

(driv\$ or passenger\$ or occupant\$) same(single\$ adj vis\$ adj2 sens\$)

0

((sens\$ with (position\$ or coordinat\$)) same (driv\$ or passenger or occupant\$))
and (single\$ with vis\$ with sens\$)

4

((sens\$ with (position\$ or coordinat\$)) same (driv\$ or passenger or occupant\$))
and (single\$ adj vis\$ adj sens\$)

0

L29	((sens\$ with (position\$ or coordinat\$)) with (driv\$ or passenger or occupant\$)) and (single\$ adj vis\$ adj sens\$)	0	L29
L28	L27 and (single\$ adj vis\$ adj sens\$)	0	L28
L27	L23 or L24 or L25 or L26 <i>DB=PGPB,USPT; THES=ASSIGNEE; PLUR=YES; OP=OR</i>	39	L27
L26	(5479173 5642238 6037860 6580973 6499025 6492935 5983161 20020024713 6278918 6151065 6405132 6222447 6487481 4035764 3964302 6498620 20040145457 5646612 6587760 5091726 6198998 6411202 5699448 5475494)! [PN]	24	L26
L25	("20050137774" "20050017857" "20030179084" "20050073396" "4307374" "6862537" "7158015" "6958683") [PN] <i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES;</i> <i>OP=OR</i>	8	L25
L24	L15 <i>DB=PGPB,USPT; THES=ASSIGNEE; PLUR=YES; OP=OR</i>	8	L24
L23	("20050137774" "20050017857" "20030179084" "20050073396" "4307374" "6862537" "7158015" "6958683") [URPN] <i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES;</i> <i>OP=OR</i>	7	L23
L22	L20 and (single\$ with (vision\$ or visual\$) with sens\$)	0	L22
L21	L20 and (single\$ adj vision\$ adj sens\$)	0	L21
L20	L19 not L15	27	L20
L19	L18 and 701/\$.ccls.	27	L19
L18	L17 and safe\$.clm.	112	L18
L17	L14 and ((sens\$ with (position\$ or coordinat\$)) with (driv\$ or passenger or occupant\$))	945	L17
L16	L1 and ((sens\$ with (position\$ or coordinat\$)) same (driv\$ or passenger or occupant\$))	1522	L16
L15	L14 and (single\$ with (vision\$ or visual\$) with sens\$)	8	L15
L14	L1 or L2	26507	L14
L13	L3 and (single\$ with (vision\$ or visual\$) with sens\$) <i>DB=PGPB; THES=ASSIGNEE; PLUR=YES; OP=OR</i>	0	L13
L12	L5 and hood\$	0	L12
L11	L5 and cruiss\$	1	L11
L10	L5 and (camera\$ same ((sens\$ with coordinat\$) same referenc\$))	0	L10
L9	L5 and camera\$	1	L9
L8	L5 and ((sens\$ with coordinat\$) same referenc\$)	1	L8
L7	L5 and L3	0	L7
L6	L5 and L4	0	L6
L5	20020026274 <i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; THES=ASSIGNEE; PLUR=YES;</i> <i>OP=OR</i>	1	L5
L4	L3 and (collid\$ or collision\$)	7	L4

L3	L1 and ((sens\$ with coordinat\$) same referenc\$)	25	L3
L2	sensor\$.clm. and (vehicle or automobile or car\$).clm. and control\$.clm. and @ad<=20031222	20891	L2
L1	sensor\$.clm. and (vehicle or automobile or car\$).clm. and control\$ and @ad<=20031222	26507	L1

END OF SEARCH HISTORY

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L27: Entry 2 of 39

File: PGPB

Apr 7, 2005

DOCUMENT-IDENTIFIER: US 20050073396 A1
TITLE: MULTIPURPOSE VISION SENSOR SYSTEM

Abstract Paragraph:

A multipurpose sensing system (10) for a vehicle (12) includes an optic (14) that is directed at multiple viewing areas (18). A vision sensor (16) is coupled to the optic (14) and generates multiple object detection signals corresponding to the viewing areas (18). A controller (22) is coupled to the vision sensor (16) and generates multiple safety system signals in response to the object detection signals.

Pre-Grant Publication (PGPub) Document Number:

20050073396

Application Filing Date:

20031002

Summary of Invention Paragraph:

[0001] The present invention relates to vehicle sensing systems. More particularly, the present invention relates to a method and system for performing multiple sensing system operations utilizing a single vision sensor.

Summary of Invention Paragraph:

[0002] Various sensing systems currently exist for performing collision warning and countermeasure system operations, such as detection, classification, tracking, and relative distance and velocity estimation of objects within a close proximity of a host vehicle. Sensing systems also exist for performing other sensing system operations, such as windshield wiper and defogger operations, occupant sensing and tracking operations, and adaptive cruise control operations.

Summary of Invention Paragraph:

[0004] Certain collision warning and countermeasure systems are able to sense an object within close proximity of the host vehicle and warn the host vehicle operator, such that the operator can take precautionary steps to prevent a collision or injury. Other collision warning and countermeasure systems activate passive or active countermeasures such as airbags, load limiting seatbelts, or brake control whereby the system itself aids in preventing a collision or injury.

Summary of Invention Paragraph:

[0007] Adaptive cruise control operations include adjusting a host vehicle traveling speed to maintain a safe operating distance between the host vehicle and a target vehicle. Other similar sensing systems also exist, such as lane departure and lane-keeping systems, which monitor lane markers or roadway lane designating lines and provide warnings when the host vehicle is not maintaining travel within a current operating lane.

Summary of Invention Paragraph:

[0010] The present invention provides a method and system for performing multiple sensing system tasks or operations. A multipurpose sensing system for a vehicle is provided and includes an optic that is directed at multiple viewing areas. A vision

sensor is coupled to the optic and generates multiple object detection signals corresponding to the viewing areas. A controller is coupled to the vision sensor and generates multiple safety system signals in response to the object detection signals.

Summary of Invention Paragraph:

[0012] Another advantage of the present invention is that it utilizes a single controller for operational control of the sensing system. The controller is capable of controlling multiple sensing system operations, thus further minimizing number of components, costs, and weight of a sensing system.

Detail Description Paragraph:

[0019] In the following figures the same reference numerals will be used to refer to the same components. The present invention may be adapted and applied to various sensing systems including: collision warning systems, collision avoidance systems, parking-aid systems, reversing-aid systems, passive countermeasure systems, adaptive cruise control systems, lane departure systems, lane-keeping systems, windshield clearing systems, or other systems known in the art.

Detail Description Paragraph:

[0026] Referring now to FIG. 1, a block diagrammatic view of a multipurpose sensing system 10 for a vehicle 12 in accordance with an embodiment of the present invention is shown. The vision sensing system 10 includes a multi-focal optic 14 coupled to a vision sensor 16. The vision sensor 16 in conjunction with the lens 14 is capable of monitoring multiple viewing areas 18, as are best seen in FIGS. 2 and 3. A signal processor 20 is coupled to the vision sensor 16 and formats object detections signals generated by the vision sensor 16 for further processing by a controller 22. The controller 22 in response to the object detection signals performs various sensing system operations.

Detail Description Paragraph:

[0027] A safety system 24 and an indicator 26 are coupled to the controller 22. The controller 22 may enable various passive countermeasures 28 and active countermeasures 30 within the safety system 24 in response to the object detection signals. The controller 22 as part of a countermeasure may generate a warning signal and communicate the warning signal to vehicle occupants via the indicator 26.

Detail Description Paragraph:

[0029] The signal processor 20 receives and converts the object detection signals, generated by the vision sensor 16, into a proper format for reception by the controller 22. The signal processor 20 may include analog-to-digital converters, filters, or amplifiers, as well as other signal conditioning components known in the art. The signal processor 20 may be part of the vision sensor 16 or the vehicle controller 22, may be a stand-alone device, as shown, or may be some combination thereof.

Detail Description Paragraph:

[0030] The controller 22 may be microprocessor based such as a computer having a central processing unit, memory (RAM and/or ROM), and associated input and output buses. The controller 22 may be an application-specific integrated circuit or be formed of other logic devices known in the art. The controller 22 may be a portion of a central vehicle main control unit, an interactive vehicle dynamics module, a restraints control module, a main safety controller, or may be a stand-alone controller as shown.

Detail Description Paragraph:

[0031] The controller 22 may perform various different sensing system operations including adaptive cruise control, lane-keeping control, lane-departure control, window clearing control, collision avoidance control, countermeasure control, or

other sensing system operations known in the art. The operations may be performed sequentially or simultaneously.

Detail Description Paragraph:

[0032] Adaptive cruise control is used for monitoring objects forward of the vehicle 12 and for maintaining a safe predetermined distance away from the detected objects to prevent collision therewith. When adaptive cruise control is active the controller 22 may warn the vehicle operator of an impending object or perform a countermeasure as to alter the speed of travel of the vehicle 12.

Detail Description Paragraph:

[0033] Lane-keeping and lane-departure control refer to when the controller 22 monitors lane markings or roadway lane designating lines and warns the vehicle operator when the vehicle 12 is exiting a current lane of travel or is directed to exit the current lane of travel. The controller 22 may perform a countermeasure to maintain the current lane of travel, such as controlling the vehicle steering to adjust direction of travel of the vehicle 12.

Detail Description Paragraph:

[0034] Window clearing control refers to performing tasks to clear a window, thus, providing a clear view of an environment forward of the vehicle 12. The vision sensor 16 in conjunction with the multi-focal optic 14 detects and senses the amount of mist, rain, or condensation on a window of the vehicle 12, such as the windshield 32. In response to the amount of moisture sensed within a given area of the window, the controller 22 may adjust wiper speed of a wiper system 34 or activate or increase flow rate of defoggers within a defogger system 36.

Detail Description Paragraph:

[0035] Countermeasure control may include occupant related operations, such as detecting occupant characteristics, determining which of the countermeasures 28 and 30 to perform, and adjusting times and activating rates of the countermeasures 28 and 30. The occupant characteristics may include occupant positioning within a seat, occupant size, or other known occupant characteristics.

Detail Description Paragraph:

[0036] The controller 22 determines which of the sensing system operations to perform. The controller 22 while performing one or more of the sensing system operations may determine whether to perform one or more of the countermeasures 28 and 30 and indicate to the vehicle operator various object and vehicle status information. Depending upon relative positions, velocities, and accelerations of the detected objects, the controller 22 may also determine whether to indicate to the vehicle operator of a potential collision or may perform a countermeasure, as needed, so as to prevent a collision, mitigate a potential injury, or prevent the vehicle 12 from traveling outside a current lane of travel.

Detail Description Paragraph:

[0037] The safety system 24 may be coupled to the controller 22 and include object detection sensors, such as the vision sensor 16, and the signal processor 20. The safety system 24 may include the countermeasures 28 and 30 as well as other safety system components, systems, or controllers known in the art.

Detail Description Paragraph:

[0038] The passive countermeasures 28 may include internal air bag control, seatbelt control, knee bolster control, head restraint control, load limiting pedal control, load limiting steering control, pretensioner control, external air bag control, pedestrian protection control, and other passive countermeasures known in the art.

Detail Description Paragraph:

[0039] The active countermeasures 30 may include brake control, throttle control,

steering control, suspension control, transmission control, and other vehicle control systems. The controller 22 may signal the vehicle operator via the indicator 26 of an impending potential collision so that the vehicle operator may actively perform a precautionary action, such as applying the brakes or steering to prevent a collision.

Detail Description Paragraph:

[0048] In step 102, the vision sensor 16 generates multiple object detection signals corresponding to the monitored viewing areas 18. Object detection signals may be continuously generated to inform the controller 22 of object status external to, on, and internal to the vehicle 12. When the reflective device 66 is utilized one or more object detection signals are generated corresponding to the viewing area 60". The object detection signals may be generated sequentially or simultaneously.

Detail Description Paragraph:

[0049] In step 104, the signal processor 20 converts, modifies, and formats the object detection signal for reception by the controller 22. The signal processor may, for example, include an analog-to-digital converter to convert analog image signals into a digital format.

Detail Description Paragraph:

[0050] In step 106, the controller 22 generates multiple safety system signals in response to the object detection signals. The safety system signals may include not only countermeasures related signals, as stated above, but may also include signals related to other sensing system controls, some of which are also stated above.

Detail Description Paragraph:

[0051] In step 108, the controller 22 may determine occupant characteristics in response to the object detection signals. In determining occupant characteristics the controller 22 may also determine whether a child safety seat is located within a vehicle seat of the viewing area 60". Step 108 may be performed simultaneously with step 106, whereby, the controller 22 generates or modifies safety system signals in response to the determined occupant characteristics.

Detail Description Paragraph:

[0052] In step 110, the controller 22 may perform multiple sensing system operations in response to the safety system signals. The controller 22 may perform a countermeasure operation, a windshield clearing operation, an adaptive cruise control operation, or any of the other above-mentioned or known in the art sensing system operation in response to the safety system signals. For example, the vision sensor 16 may detect a moisture level on the windshield 32 to be above a predetermined level and in response thereto the controller 22 may activate or increase speed of the wiper system 34. As another example, the vision sensor 16 may detect an occupant that is small in size or a child safety seat within a seat system and decelerate or prevent activation of an air bag near the occupant or safety seat.

Detail Description Paragraph:

[0054] The present invention provides a multipurpose sensing system that is capable of monitoring multiple viewing areas using a single vision sensor and controller. The present invention in utilizing a single vision sensor and controller minimizes the number of sensors and sensing system components within a vehicle, sensing system complexity, and manufacturing and maintenance costs involved therein.

CLAIMS:

1. A multipurpose sensing system for a vehicle comprising: at least one optic directed at a plurality of viewing areas; a single vision sensor coupled to said at least one optic and generating a plurality of object detection signals

corresponding to said plurality of viewing areas; and a controller coupled to said vision sensor and generating a plurality of safety system signals in response to said plurality of object detection signals.

2. A system as in claim 1 wherein said vision sensor generates a first object detection signal and a second object detection signal and wherein said controller generates a first safety system signal in response to said first object detection signal and a second safety system signal in response to said second object detection signal.

3. A system as in claim 1 wherein said at least one optic comprises: a first focal point that corresponds to objects on the vehicle; and a second focal point that corresponds to objects external to the vehicle.

4. A system as in claim 3 wherein said first focal point corresponds to moisture on a vehicle window.

5. A system as in claim 1 wherein said at least one optic comprises: a first focal point that corresponds to objects within the vehicle; and a second focal point that corresponds to objects external to the vehicle.

6. A system as in claim 5 wherein said first focal point corresponds to vehicle occupants within the vehicle.

7. A system as in claim 1 wherein said vision sensor is selected from a camera, a charged coupled device, an infrared detector, and at least one photodiode.

8. A system as in claim 1 further comprising a signal processor receiving and formatting said plurality of object detection signals for reception by said controller.

9. A system as in claim 1 wherein said vision sensor generates said plurality of object detection signals simultaneously.

11. A system as in claim 1 wherein said controller performs sensing system operations selected from at least one of adaptive cruise control, lane-keeping control, lane-departure control, window clearing control, collision avoidance control, and countermeasure control in response to said plurality of object detection signals.

12. A system as in claim 1 wherein said controller determines occupant characteristics in response to said plurality of object detection signals.

13. A system as in claim 1 wherein said controller determines existence of a child safety seat in response to said plurality of object detection signals.

14. A system as in claim 1 further comprising a reflective device, said vision sensor generating at least one object detection signal in response to at least a portion of a view from said reflective device.

16. A method of performing a plurality of sensing system operations within a vehicle comprising: monitoring a plurality of viewing areas; generating a plurality of object detection signals from a single vision sensor corresponding to said plurality of viewing areas; generating a plurality of safety system signals in response to said plurality of object detection signals; and performing the plurality of sensing system operations in response to said plurality of safety system signals.

17. A method as in claim 16 wherein monitoring a plurality of viewing areas comprises monitoring a first viewing area on the vehicle and a second viewing area

external to the vehicle.

18. A method as in claim 16 wherein monitoring a plurality of viewing areas comprises monitoring a first viewing area internal to the vehicle and a second viewing area external to the vehicle.

20. A multipurpose sensing system for a vehicle comprising: a multi-focal lens having a first focal point corresponding to a first viewing area and a second focal point corresponding to a second viewing area; a reflective device directed at said second viewing area; a vision sensor coupled to said bi-focal lens and generating a first object detection signal with respect to said first viewing area and a second object detection signal with respect to said second viewing area as is reflected from said reflective device; and a controller coupled to said vision sensor and generating a first safety system signal in response to said first object detection signal and a second safety system signal in response to said second object detection signal.

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☒ 1. Document ID: US 20050137774 A1

L27: Entry 1 of 39

File: PGPB

Jun 23, 2005

PGPUB-DOCUMENT-NUMBER: 20050137774

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050137774 A1

TITLE: SINGLE VISION SENSOR OBJECT DETECTION SYSTEM

PUBLICATION-DATE: June 23, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Rupp, Jeffrey D.	Ann Arbor	MI	US

US-CL-CURRENT: 701/96; 180/170, 340/436

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachment	Claims	Index	Drawings
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☒ 2. Document ID: US 20050073396 A1

L27: Entry 2 of 39

File: PGPB

Apr 7, 2005

PGPUB-DOCUMENT-NUMBER: 20050073396

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050073396 A1

TITLE: MULTIPURPOSE VISION SENSOR SYSTEM

PUBLICATION-DATE: April 7, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Mills, Aaron L.	Ann Arbor	MI	US
Engelman, Gerald H.	Plymouth	MI	US
Xu, Liwen	Southfield	MI	US
Beydoun, Samir Mohamad	Dearborn Heights	MI	US

US-CL-CURRENT: 340/435; 701/45

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachment	Claims	Index	Drawings
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3. Document ID: US 20050017857 A1

L27: Entry 3 of 39

File: PGPB

Jan 27, 2005

PGPUB-DOCUMENT-NUMBER: 20050017857
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050017857 A1

TITLE: VISION-BASED METHOD AND SYSTEM FOR AUTOMOTIVE PARKING AID, REVERSING AID,
AND PRE-COLLISION SENSING APPLICATION

PUBLICATION-DATE: January 27, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Rao, Manoharprasad K.	Novi	MI	US
Prakah-Asante, Kwaku O.	Commerce Township	MI	US
Strumolo, Gary Steven	Beverly Hills	MI	US
Ebenstein, Samuel Edward	Southfield	MI	US
Smith, Gregory H.	Ann Arbor	MI	US

US-CL-CURRENT: 340/435

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	Draw	Draw
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4. Document ID: US 20040145457 A1

L27: Entry 4 of 39

File: PGPB

Jul 29, 2004

PGPUB-DOCUMENT-NUMBER: 20040145457
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20040145457 A1

TITLE: Accessory system suitable for use in a vehicle

PUBLICATION-DATE: July 29, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Schofield, Kenneth	Holland	MI	US
O'Brien, Frank	Holland	MI	US
Bingle, Robert L.	Holland	MI	US
Lynam, Niall R.	Holland	MI	US

US-CL-CURRENT: 340/425.5; 345/7

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	Draw	Draw
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5. Document ID: US 20030179084 A1

L27: Entry 5 of 39

File: PGPB

Sep 25, 2003

PGPUB-DOCUMENT-NUMBER: 20030179084
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030179084 A1

TITLE: Sensor fusion system architecture

PUBLICATION-DATE: September 25, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Skrbina, David	Northville	MI	US
Kronen, Stanley Thomas	Canton	MI	US

US-CL-CURRENT: 340/435; 340/522, 701/36

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachments	Claims	Index	Drawings
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6. Document ID: US 20020024713 A1

L27: Entry 6 of 39

File: PGPB

Feb 28, 2002

PGPUB-DOCUMENT-NUMBER: 20020024713
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020024713 A1

TITLE: Proximity switch and vehicle rearview mirror assembly incorporating the same and having a transparent housing

PUBLICATION-DATE: February 28, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Roberts, John K.	East Grand Rapids	MI	US
Fogg, Jeremy A.	Holland	MI	US
Bauer, Frederick T.	Holland	MI	US

US-CL-CURRENT: 359/267; 359/838, 359/839, 359/841, 362/460

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachments	Claims	Index	Drawings
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7. Document ID: US 7158015 B2

L27: Entry 7 of 39

File: USPT

Jan 2, 2007

US-PAT-NO: 7158015
DOCUMENT-IDENTIFIER: US 7158015 B2

TITLE: Vision-based method and system for automotive parking aid, reversing aid,
and pre-collision sensing application

PRIOR-PUBLICATION:

DOC-ID

US 20050017857 A1

DATE

January 27, 2005

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	Index	Drawings
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8. Document ID: US 7047132 B2

L27: Entry 8 of 39

File: USPT

May 16, 2006

US-PAT-NO: 7047132

DOCUMENT-IDENTIFIER: US 7047132 B2

TITLE: Mobile vehicle sensor array

PRIOR-PUBLICATION:

DOC-ID

US 20050154503 A1

DATE

July 14, 2005

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	Index	Drawings
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9. Document ID: US 6958683 B2

L27: Entry 9 of 39

File: USPT

Oct 25, 2005

US-PAT-NO: 6958683

DOCUMENT-IDENTIFIER: US 6958683 B2

TITLE: Multipurpose vision sensor system

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	Index	Drawings
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10. Document ID: US 6862537 B2

L27: Entry 10 of 39

File: USPT

Mar 1, 2005

US-PAT-NO: 6862537

DOCUMENT-IDENTIFIER: US 6862537 B2

TITLE: Sensor fusion system architecture

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	Index	Drawings
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Search Results - Record(s) 1 through 10 of 11 returned.

☒ 1. Document ID: US 20050137774 A1

L38: Entry 1 of 11

File: PGPB

Jun 23, 2005

PGPUB-DOCUMENT-NUMBER: 20050137774

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050137774 A1

TITLE: SINGLE VISION SENSOR OBJECT DETECTION SYSTEM

PUBLICATION-DATE: June 23, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Rupp, Jeffrey D.	Ann Arbor	MI	US

US-CL-CURRENT: 701/96; 180/170, 340/436

Full	Title	Citation	Front	Reverso	Classification	Date	Reference	Sequences	Attachments	Claims	Index	Drawings
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☒ 2. Document ID: US 20050073396 A1

L38: Entry 2 of 11

File: PGPB

Apr 7, 2005

PGPUB-DOCUMENT-NUMBER: 20050073396

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20050073396 A1

TITLE: MULTIPURPOSE VISION SENSOR SYSTEM

PUBLICATION-DATE: April 7, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Mills, Aaron L.	Ann Arbor	MI	US
Engelman, Gerald H.	Plymouth	MI	US
Xu, Liwen	Southfield	MI	US
Beydoun, Samir Mohamad	Dearborn Heights	MI	US

US-CL-CURRENT: 340/435; 701/45

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	Index	Drawings
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3. Document ID: US 20050017857 A1

L38: Entry 3 of 11

File: PGPB

Jan 27, 2005

PGPUB-DOCUMENT-NUMBER: 20050017857
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050017857 A1

TITLE: VISION-BASED METHOD AND SYSTEM FOR AUTOMOTIVE PARKING AID, REVERSING AID,
AND PRE-COLLISION SENSING APPLICATION

PUBLICATION-DATE: January 27, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Rao, Manoharprasad K.	Novi	MI	US
Prakah-Asante, Kwaku O.	Commerce Township	MI	US
Strumolo, Gary Steven	Beverly Hills	MI	US
Ebenstein, Samuel Edward	Southfield	MI	US
Smith, Gregory H.	Ann Arbor	MI	US

US-CL-CURRENT: 340/435

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	Index	Drawings
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4. Document ID: US 20030179084 A1

L38: Entry 4 of 11

File: PGPB

Sep 25, 2003

PGPUB-DOCUMENT-NUMBER: 20030179084
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20030179084 A1

TITLE: Sensor fusion system architecture

PUBLICATION-DATE: September 25, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY
Skrbina, David	Northville	MI	US
Kronen, Stanley Thomas	Canton	MI	US

US-CL-CURRENT: 340/435; 340/522, 701/36

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	Index	Drawings
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5. Document ID: US 7158015 B2

L38: Entry 5 of 11

File: USPT

Jan 2, 2007

US-PAT-NO: 7158015

DOCUMENT-IDENTIFIER: US 7158015 B2

TITLE: Vision-based method and system for automotive parking aid, reversing aid, and pre-collision sensing application

PRIOR-PUBLICATION:

DOC-ID

DATE

US 20050017857 A1

January 27, 2005

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	Index	Drawings
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6. Document ID: US 6958683 B2

L38: Entry 6 of 11

File: USPT

Oct 25, 2005

US-PAT-NO: 6958683

DOCUMENT-IDENTIFIER: US 6958683 B2

TITLE: Multipurpose vision sensor system

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	Index	Drawings
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7. Document ID: US 6862537 B2

L38: Entry 7 of 11

File: USPT

Mar 1, 2005

US-PAT-NO: 6862537

DOCUMENT-IDENTIFIER: US 6862537 B2

TITLE: Sensor fusion system architecture

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	Index	Drawings
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8. Document ID: US 6499025 B1

L38: Entry 8 of 11

File: USPT

Dec 24, 2002

US-PAT-NO: 6499025

DOCUMENT-IDENTIFIER: US 6499025 B1

**** See image for Certificate of Correction ****

TITLE: System and method for tracking objects by fusing results of multiple sensing modalities

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	DOC	Draw
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9. Document ID: US 6498620 B2

L38: Entry 9 of 11

File: USPT

Dec 24, 2002

US-PAT-NO: 6498620

DOCUMENT-IDENTIFIER: US 6498620 B2

TITLE: Vision system for a vehicle including an image capture device and a display system having a long focal length

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	DOC	Draw
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10. Document ID: US 6222447 B1

L38: Entry 10 of 11

File: USPT

Apr 24, 2001

US-PAT-NO: 6222447

DOCUMENT-IDENTIFIER: US 6222447 B1

TITLE: Rearview vision system with indicia of backup travel

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	DOC	Draw
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